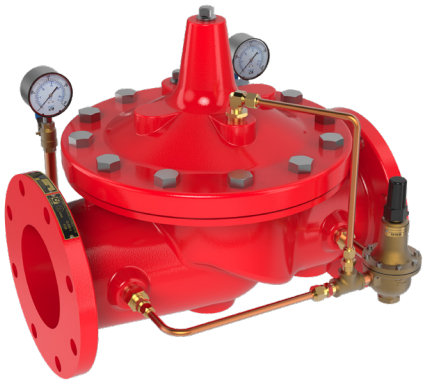
CLA-VAL®

MODELS **90G-21** / **90A-21**

Fire Protection Pressure Reducing Valves



- **UL & ULC Listed**
- **Globe or Angle Pattern**
- **Proven Reliable Design**
- **In Line Service**
- **Grooved Ends (1-1/2" - 8")**

Cla-Val 90-21 Pressure Reducing Valves are indispensable in any fire protection system. Available in globe (90G-21) and angle patterns (90A-21), our diaphragm actuated design is proven to be highly reliable and easy to maintain. Our 90-21 valves feature a full range of adjustments and variety of material options.

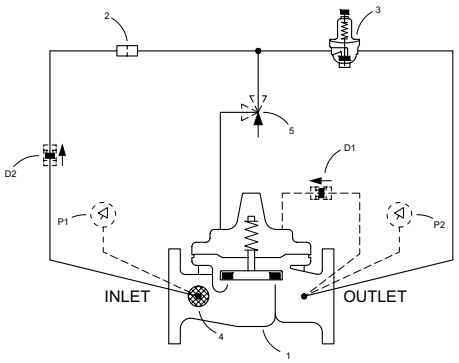
Special System Water Control Valves – Class II
UL Product Category VLMT – File No. Ex 2534

Function

Cla-Val 90G-21 (globe) and 90A-21 (angle) Pressure Reducing Valves automatically reduce a higher inlet pressure to a steady lower outlet pressure regardless of changing flow rate and/or varying inlet pressure. The valves pilot control system is very sensitive to slight downstream pressure fluctuations, and will automatically modulate to maintain the desired pressure setting. The downstream pressure can be set over a wide range by turning the adjustment screw clockwise (increase pressure) or counter clockwise (decrease pressure) on the CRD pilot control. The adjustment screw is protected by a screw-on cover, which can be sealed to discourage tampering.

Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	X58C Restriction Assembly
3	CRD Pressure Reducing Control
4	X46A Flow Clean Strainer
5	CV Flow Control (opening)
D	Check Valve Option
P	Gauge Option

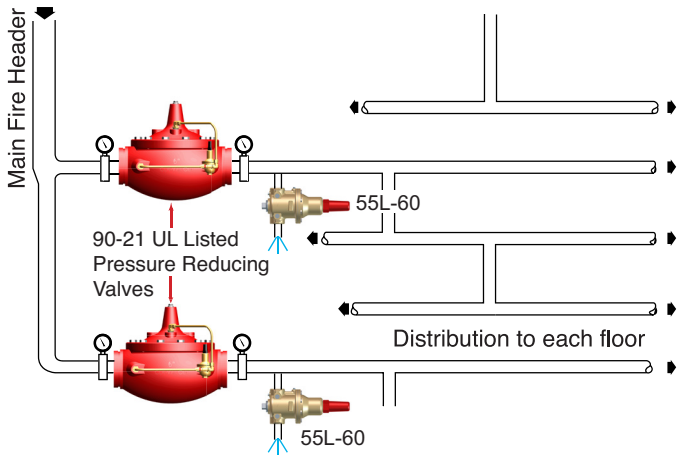


Typical Application

Underwriters Laboratories requires the installation of pressure gauges upstream and downstream of the Pressure Reducing Valve.

A relief valve of not less than 1/2 inch in size must also be installed on the downstream side of the pressure control valve. Adequate drainage for the relief valve discharge must be provided.

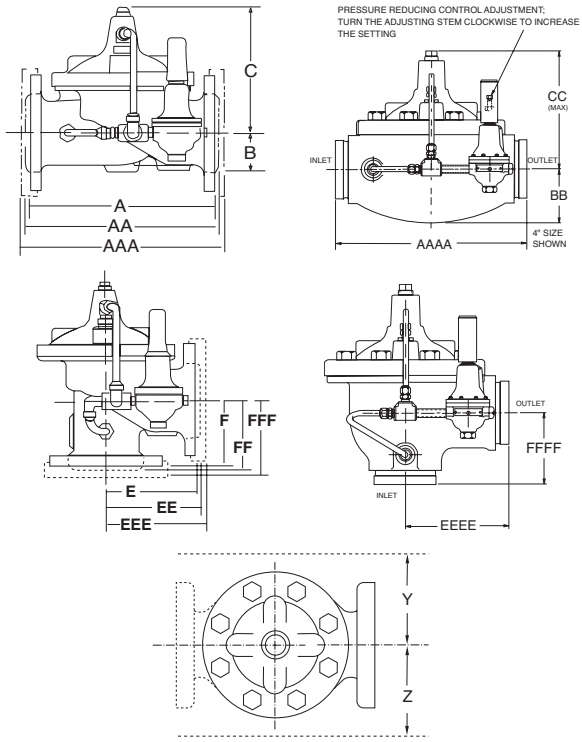
The valve may be installed in either vertical or horizontal positions.



Dimensions

Valve Size (Inches)	1 1/2	2	2 1/2	3	4	6	8	10	12
A Threaded	7.25	9.38	11.00	12.50	—	—	—	—	—
AA 150 ANSI	8.50	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00
AAA 300 ANSI	9.00	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50
AAAA Grooved End	8.50	9.00	11.00	12.50	15.00	20.00	25.38	—	—
B	1.12	1.50	1.69	2.06	3.19	4.31	5.31	9.25	10.75
BB Grooved End	2.00	2.50	2.88	3.12	4.25	6.00	7.56	—	—
C Max.	5.50	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88
CC Max. Grooved End	4.75	5.75	6.88	7.25	9.31	12.12	14.62	—	—
E Threaded	3.25	4.75	5.50	6.25	—	—	—	—	—
EE 150 ANSI	4.00	4.75	5.50	6.00	7.50	10.00	12.69	14.88	17.00
EEE 300 ANSI	4.25	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75
EEEE Grooved End	—	4.75	—	6.00	7.50	—	—	—	—
F Threaded	1.88	3.25	4.00	4.50	—	—	—	—	—
FF 150 ANSI	4.00	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75
FFF 300 ANSI	4.25	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50
FFFF Grooved End	—	3.25	—	4.25	5.00	—	—	—	—
Y	9	9	10	11	12	20	22	24	26
Z	9	9	10	11	12	20	22	24	26

Valve Size (mm)	40	50	65	80	100	150	200	250	300
A Threaded	184	238	279	318	—	—	—	—	—
AA 150 ANSI	216	238	279	305	381	508	645	756	864
AAA 300 ANSI	229	254	295	337	397	533	670	790	902
AAAA Grooved End	216	228	279	318	381	508	645	—	—
B	29	38	43	52	81	110	135	235	273
BB Grooved End	52	64	73	79	108	152	192	—	—
C Max.	140	165	192	208	270	340	406	435	530
CC Max. Grooved End	120	146	175	184	236	308	371	—	—
E Threaded	83	121	140	159	—	—	—	—	—
EE 150 ANSI	102	121	140	152	191	254	322	378	432
EEE 300 ANSI	108	127	149	162	200	267	337	395	451
EEEE Grooved End	—	121	—	152	191	—	—	—	—
F Threaded	48	83	102	114	—	—	—	—	—
FF 150 ANSI	102	83	102	102	127	152	203	219	349
FFF 300 ANSI	102	89	110	111	135	165	216	236	368
FFFF Grooved End	—	83	—	108	127	—	—	—	—
Y	229	229	254	280	305	508	559	610	661
Z	229	229	254	280	305	508	559	610	661



Selection Guidelines

Flow Capacity Table

Flow Rate (GPM of Water)

Valve Size	Maximum
1½"	110
2"	196
2½"	306
3"	441
4"	783
6"	1763
8"	3133
10"	4896
12"	7050

Optional UL Listed Materials for Seawater and Severe Service Applications:

- Nickel Aluminum Bronze (NAB) - ASTM B148 Alloy C95800
- Monel - QQ-N-288 Comp B - ASTM A494 Grade M30H
- Cast Steel - ASTM A216 Grade WCB
- 316 Stainless Steel - ASTM A743 Grades CF3M and CFM8
- Super Austenitic Stainless Steel - ASTM A351 Grade CK3MCuN (SMO 254)
- Super Duplex Stainless Steel - ASTM A890 Grade 5A (CE3MN)

Note: (1) Minimum Pressure Differential decreases as flow rates decrease.
(2) All sizes are designed to meet minimum flow of system components.

End Details: 150 and 300 ANSI B16.42

Pressure Ratings: Class 150 - 250 psi Max.
Class 300 - 300 psi Max

Standard Materials:

Main Valve Body & Cover:
Ductile Iron ASTM A536 Grade 65-45-12

Standard Main Valve Trim:
Stainless Steel Seat
Stainless Steel Stem

Standard Pilot Control System:
Cast Bronze with Stainless Steel Trim

Pressure Adjustment Ranges:

Size	UL / ULC
1-1/2"	50-175
2"- 8"	30-165
10"- 12"	30-175

Minimum Pressure Differential (at Max Flow):

1-1/2"	20 psi
2" - 8"	10 psi
10"	20 psi
12"	45 psi

Temperature Range: Water to 180°F Maximum

The pressure rating of the components installed downstream of the valve shall not be exceeded.

When Ordering, Specify:

1. Model Number 90-21
2. Size
3. Globe or Angle Pattern
4. Main Valve Body and Cover Material
5. Threaded, Flanged or Grooved
6. Pressure Class

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